

August 25, 2010

In the past few weeks DelDOT has received multiple inquiries concerning reported work stoppages, false work settlement, and concrete cracking associated with the current Indian River Inlet Bridge replacement project.

As has been the case throughout the design-build project, we will continue to keep the public updated on significant events at the site by distributing information via our project website, our regular working group meetings, public events such as open houses, and via our local legislators and media outlets.

I thought it would be appropriate to address these issues promptly and accurately to all the stakeholders on the project so that our responses aren't misconstrued. Listed below are questions posed to us, mostly by the media, along with responses that were provided. Questions 1 through 6 were asked in reaction to a report about work stoppages at the site and cracks in the concrete. Questions 6 through 12 were asked as a follow-up to our responses to the first 6 questions.

Question 1: Has work resumed?

Response: Yes.

Question 2: Did the contractor have to remove before repouring, or is the removal going on now.

Response: No removal work was performed. DelDOT does not believe any removal will be required.

Questions 3: Was the schedule affected in any way and was the cost affected in any way?

Response: Intermittent stoppages related to this work occurred over roughly a one month period between July and August of this year. Any cost and delay impacts associated with the stoppage will be addressed by the Design-Builder and DelDOT in accordance with the contract. It is premature to speculate on what, if any, impacts this issue will have on the overall project schedule and budget.

Question 4: How much concrete, or what dimensions, involved in the project were affected and where did the problem turn up (south approach, north approach)?

Response: The two deck sections in question measure 82 feet long by 106 feet wide. One area is located at each of the north and south pylon areas. Very fine cracking was detected in these structure elements through the Quality Assurance/Quality Control process and the issue is continuing to be addressed. The nature of the cracking in these areas does not pose a structural concern. The Department's and Design-Builder's focus is on restoring the durability of these deck sections in order to achieve the required 100-year design life. DelDOT is confident this will be achieved.

Question 5: Can you say what happened, specifically? Was the concrete not to spec by depth or composition or did it start to crack, not at the right temperature?

Response: The cause for the cracking exhibited in these deck sections is still actively being evaluated and discussed by the Design-Builder and DelDOT in order to prevent any re-occurrence.

Question 6: Has there been a delay associated with placement of the "traveler" or self-launching system that will be used to place bridge segments across the open span? If so, what are the details and what additional time will be required?

Response: The Quality Assurance/Quality Control program for the project identified a few design issues related to the form traveler that resulted in additional analysis and ultimately the need for some modifications to the form traveler system. As can be expected on a project of this magnitude, various weather, design, and construction challenges have hindered the overall progress of the bridge construction. Despite these challenges, the work is approximately 65% complete. DelDOT and the Design-Builder are continuing to evaluate opportunities to further mitigate delays encountered to date, and to safely and efficiently complete the work as soon as possible. A more accurate picture will become apparent this fall for any completion date.

Question 7: DelDOT presentations last year had the IRIB opening to traffic in spring of 2011. My understanding now is that the bridge is expected to open to traffic in the fall of 2011. Is that the case and does that mean a slip of about six months? Can you summarize the contributions to the delay and break it down? Our understanding is the reinforcement of the traveler accounts for about two months.

Response: The original scheduled opening to traffic was April 29, 2011. A formal 25 day contract time extension was granted due to adverse weather between November 2009 and March 2010. This moved the scheduled opening to traffic to May 24, 2011. The project is currently tracking 4 to 6 months behind schedule due to various additional weather impacts, design considerations, and construction challenges that can all be expected for a project of this magnitude. We are in the process of evaluating what, if any, affect the intermittent stoppages in July and August had on the overall completion date for the project. The schedule is dynamic and the completion date may change depending on construction progress. Although the schedule currently indicates a 4 to 6 month delay; that could change moving forward as we evaluate opportunities to accelerate construction.

Question 8: Has DelDOT determined the cause of the cracking in the poured area around the pylons? If so, what was the cause and what is the remedy?

Response: The two sections of concreted deck that were the focus of the intermittent work stoppages are unique to the structure because of their location, depth, and the design criteria for that area of the bridge. It is believed that a combination of complex factors that only occur in this area, contributed to the cracking issue. At this time, the design-build team, their quality control staff, DelDOT and FHWA are satisfied that the cracking does not affect the structural integrity or stability of the bridge deck. We are continuing to review the situation and additional action will be taken if deemed necessary. Our main objective is to achieve the durability of the final bridge deck surface. The cracking will be mitigated through a combination of repairs and reliance on inherent design features that are intended to account for situations such as this. Repairs will include injecting and filling the cracks with high-performance epoxy materials and coating the exposed surfaces with a crack sealing material. The design already includes steel reinforcement cast into the concrete deck as well as post-tensioning systems, that are applied after the concrete has cured and gained sufficient strength. These design measures are intended to protect and maintain the integrity of the structure in situations like this and have always been part of the design. Additionally, the contract calls for a separate 1 ½” thick riding surface to be applied over the entire cable-supported portion of the bridge deck to further protect the structure and ensure the required design life is achieved.

Question 9: What method did DelDOT use to determine the depth and extent of cracking—X-rays, ultrasound? How deep do the cracks go and is the concrete now stable?

Response: The cracks were detected during the quality control/ quality assurance checks by wetting the concrete and allowing it to dry. This simple, effective visual method helps to reveal very small cracks. We may use other methods, such as x-ray or ultrasound to do some additional investigation if warranted. The crack widths vary, but are extremely narrow in width. The

widest measured crack is only 0.006" wide. These are often referred to as "hair-line" cracks because they are comparable to the width of a coarse human hair. Two -inch diameter concrete cores were taken in selective areas to avoid harming the integrity of the deck. The crack depths vary from a few inches to 10 ½". At this time, the cracks are not considered harmful to the structural integrity or stability of the deck.

Question 10: Have there been any interruptions in or changes to concrete pour schedules related to the concrete cracking issue and are they ongoing? Was there a delay last week and on Monday? Have regular deliveries and work activities resumed or is any pouring or work still on hold? Why and what's the summary version?

Response: In July and August, intermittent suspension of deck pours occurred while the cracking issue was thoroughly investigated and addressed. No concrete pour restrictions are currently in effect. We receive monthly schedule updates that reflect construction progress.

Question 11: Have any problems or signs of unexpected settling occurred in the false work areas? Have there been any unexpected false work settlement rates or extents, or any deviations from expectations regarding loads and settlement for the false-work and concrete deck, whether poured or pre-cast?

Response: There has been no settlement above and beyond what was anticipated and accounted for in the design. Minor movements are normal for this type of structure and are expected to occur at various stages of construction. These movements are constantly being monitored by survey and are within design expectations.

Question 12: If the traveler is having to be reworked or reinforced to account for heavier loads or heavier segments, then are the segments also heavier on the landward side of the area where the travelers will work, and if so has there any consequence or will there be any consequence (as in cracking, reinforcement requirements, etc.)

Response: The form traveler modifications have had no impact on the original design concept for the permanent bridge structure. No strengthening of the bridge is necessary. The traveler loads are temporary and do not require permanent counterweight on the back spans. The heavier traveler loads will be temporary and will be counteracted with the use of a temporary stay cable anchored at the pylon top and extending to the traveler itself as it advances over the inlet. These measures have no adverse impact to the bridge structure.

As you know the bridge is very complicated from a design and construction standpoint. We have encountered some challenges along the way, as can be expected on any complex project. When these challenges arise, the project team is responding to them quickly, while also striving to perform thorough assessments of an issue, and making certain that the resolutions to the issue meet all of our project objectives. While this thoroughness may appear to be slowing progress down at times, it is our responsibility to ensure the safety of the traveling public and the work force, as well as ensure that the completed structure is built to the highest quality.

DelDOT and the design-build team are committed to providing the citizens of Delaware with a completed project of high quality that is built safely, efficiently, and economically and that will serve as a landmark that the citizens of Delaware can be proud of.

Sincerely,

A handwritten signature in dark red ink, reading "Carolann Wicks". The signature is fluid and cursive, with the first name "Carolann" and last name "Wicks" clearly distinguishable.

Carolann Wicks, P.E.

Secretary